

## AMENDMENTS TO THE CLAIMS

This listing of claims is intended to replace all prior listing of claims in the application.

### Listing of Claims

1. (Currently amended) A device for processing a detector current supplied by a particle detector, said device comprising:

a unit for reducing a fluctuating component of background noise present in said detector current and providing a treated detector current, said unit comprising:

a converter for associating an intermediate voltage signal with ~~the said~~ detector current;

a threshold trigger for allowing said intermediate voltage signal to pass when said intermediate voltage signal exceeds a first predetermined threshold value and for preventing said intermediate voltage signal from passing when said intermediate voltage signal falls below a second predetermined threshold value, said threshold trigger providing a treated voltage signal; and

a converter for associating said treated detector current with said treated voltage signal; and

said device further comprising: an integrator for measuring ~~the a~~ total charge transported by said treated detector current for a predetermined time interval.

2. (Cancelled)

3. (Previously presented) The device according to claim 1, wherein said converter for associating said intermediate voltage signal comprises an amplifier in parallel with a resistor.
4. (Previously presented) The device according to claim 1, wherein said threshold trigger comprises a comparator.
5. (Previously presented) The device according to claim 1, wherein said converter for associating said treated detector current comprises a resistor.
6. (Previously presented) A system comprising a set of particle detectors producing respective signals, and at least one of said devices according to claim 1 for processing at least one of said signals.
7. (Currently amended) A system comprising a device according to claim 1, wherein ~~the said~~ particle detector comprises a photon detector, wherein particles detected by said photon detector comprise photons.
8. (Previously presented) A radiology apparatus comprising a device according to claim 1.
9. (Previously presented) An imaging apparatus comprising a device according to claim 1.
10. (Previously presented) A fluoroscopy apparatus comprising a device according to claim 1.
11. (Currently amended) The device according to claim 1, further comprising a unit for reducing a direct component of the background noise in said detector current, said unit comprising a capacitor connected to said particle detector and an input of to ~~the said~~ unit for reducing the fluctuating component.

12. (Previously presented) The device according to claim 1, wherein said integrator comprises an amplifier and a capacitor arranged in parallel.

13. (Currently amended) The device according to claim 7, wherein the particle detector comprises a CdZnTe material, ~~the said~~ particle detector adapted to measure X-rays.

14. (Currently amended) A device for processing a detector signal derived from a particle detector comprising:

a unit for reducing a fluctuating component of background noise present in said detector signal and for producing an input signal, said unit comprising:

a converter for associating an output voltage with an input current of said detector signal;

a threshold trigger for allowing current to pass when said output voltage exceeds a first predetermined threshold value and for preventing current from passing when said output voltage falls below a second predetermined threshold value; and

a converter for associating ~~the said~~ input signal with an output current of ~~the said~~ threshold trigger; and

an integrator for measuring ~~the a~~ total charge transported by ~~the said~~ input signal feeding said integrator for a predetermined time interval.

15. (Currently amended) A method for processing a detector current signal derived from a particle detector, said method comprising:

sensing a detector current;

associating an intermediate voltage with a current derived from said detector current;

applying ~~the said~~ intermediate voltage to a switch providing an output switch voltage, said switch allowing said intermediate voltage to pass when said intermediate voltage exceeds a first predetermined threshold value

and preventing said intermediate voltage from passing when said intermediate voltage falls below a second predetermined threshold value;  
associating a processed current with said output switch voltage;  
and  
integrating ~~the~~ a total charge transported by said processed current.

16. (Previously presented) The method of claim 15, further comprising processing said detector current through a capacitor prior to the step of associating an intermediate voltage.

17. (Previously presented) The method of claim 15, further comprising reinitializing the integration process at predetermined time intervals.

18. (Currently amended) The method of claim 15, wherein ~~the~~ said particle detector is used to measure X-rays.

19. (Currently amended) The method of claim 15, wherein a stream of particles entering ~~the~~ said particle detector is weak.

20. (New) The device according to claim 1 further comprising a logic unit to reinitialize the integration process at predetermined time intervals.

21. (New) The device according to claim 1, wherein the total charge transported by said treated detector current represents a total energy of radiation received by said particle detector.